KENTUCKY ECONOMIC FORECAST

Frankfort, Kentucky
January 2002

The Governor's Office for Economic Analysis (GOEA) is responsible for analyzing the economy of the Commonwealth of Kentucky and the United States. At the heart of this endeavor is a dynamic response econometric model that forecasts the economic outlook for Kentucky.

GOEA will release forecasts of the Kentucky economy every quarter in the first month of each quarter.

Just as the economic outlook detailed in this report helps the Office of State Budget Director in planning for the future, we hope it serves a similar purpose to a broader audience.

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The Recession and Beyond

During much of last year it felt as though the state economy was in a recession. We were losing manufacturing jobs, building activity was down, and revenue receipts were slipping. There was talk of a "manufacturing recession" to reflect the economic slide in states like Kentucky with a large industrial base (see map on last page). Then in November the National Bureau of Economic Research (NBER) confirmed that, indeed, the nation had been in recession since March 2001. States like Kentucky with a preponderance of manufacturing employment had felt the impact earlier. The question now becomes: When will the expansion begin?

Most analysts see a national recovery in early spring as a result of the tax cuts passed by Congress last spring, and the aggressive monetary policy of the Fed with almost monthly interest rate cuts. The outlook for the state is slightly gloomier. A national recovery doesn't automatically translate into humming factories, longer work-hours, and increased employment in Kentucky. With excess industrial capacity available in much of the world and a strong dollar, it is imports that will pick-up first, followed by a more cautious increase in domestic industrial production. Our quarterly model for Kentucky indicates that only during the last quarter of 2002 will nonagricultural employment return to its pre-recession level.

Forecast Summary

The recession is expected to bottom out during the current quarter with peak-to-trough decline of 0.6 percent. In contrast the 1990-91 recession registered a net decline in real GDP of 1.5 percent. Though mild by historical measures the impact varies from region to region. States like Kentucky have felt the brunt of the recession, whereas areas with more diversified economies did not. The forecast assumes that historically low short term interest rates, a stable stock market, and low energy prices will encourage businesses to start investing in 2002.

It must be remembered that though web-based companies and e-commerce drew all the press, it was increased productivity that was the underlying engine for the new economy. Manufacturing output per hour, a measure of productivity, showed an annual average increase of 3.8 percent during the decade of

the 1990s, compared to 2.8 percent in the 1980s. The technological infrastructure of the 1990s is still in place, it's only the high-soaring companies with monthly "burn rates" of millions of dollars that have seen the corrective effect of the invisible hand. Manufacturing productivity during the next three years is forecasted to grow by an average of 3.9 percent. This will help Kentucky's manufacturing sector and boost overall employment.

National Output

Real gross domestic product (GDP) is an inflation-adjusted measure of the total output of goods and services produced in the United States. During the first quarter of the recession—April-to-June 2001—real GDP grew by just 0.3 percent, followed by a contraction of 1.3 percent in the next quarter. For 2002 real GDP is expected to register an overall growth of 0.6 percent, the lowest in a decade. The biggest rebound in output is forecasted for the fourth quarter of 2002 with real GDP growing by 4.3 percent. It's expected that it will take that long for domestic industrial production in manufacturing to recover. It's no coincidence that our forecast for Kentucky has the state economy recovering during the final quarter when industrial output is forecasted by DRI-WEFA to jump by 7.0 percent.

Real GDP growth is expected to be strong during the next two years averaging 3.7 percent annually in 2003 and 2004. Typically these gains are consumer-driven since consumption accounts for over two-thirds of total GDP. Throughout the 1990s consumers drove the economy as demand for new goods and services grew rapidly. Nationally total consumption peaked with a growth rate of 5.0 percent in 1999 which corresponded to a growth in Kentucky sales tax receipts of 4.5 percent. During 2002 growth in real consumption is forecasted at 1.4 percent with gains of 3.7 percent and 3.3 percent in 2003 and 2004. The tepid current year growth is tied to the expected dismal performance of durable goods consumption, which is expected to decline this year by 1.0 percent. One of the principal causes for the decline is the attractive financial incentives offered to consumers in the last quarter of 2001 which shifted a substantial amount of motor vehicle purchase out of 2002 into 2001. Consumption of light vehicles is expected to decline by 4.9 percent in 2002.

Total investment comprises close to a fifth of real GDP and is usually sensitive to both interest rates and future expansion opportunities. The current recession has been marked by a decline in business confidence much before consumers changed the spending habits acquired in the booming 1990s. In 2000 when the economy was on the upswing, business investments were increasing rapidly. Investment increased by 6.8 percent in 2000 and consumption by 4.8 percent. The NASDAQ crash in March 2000 pricked the investment bubble and in 2001 investment declined by 7.1 percent. In 2002 business investment is expected to decline by a further 1.2 percent. Investment picks up in 2003 with an increase of 7.2 percent followed by 6.2 percent in 2004. The investment forecast is strong in 2003 not so much because of recovery in traditional bricks and machinery investments, but because of computers and software. These now constitute 30 percent of all investment activity. A few years ago investment was re-defined by the federal government to include software. This has been one of the most dynamic sectors of the economy and is slated to grow strongly during the forecast period.

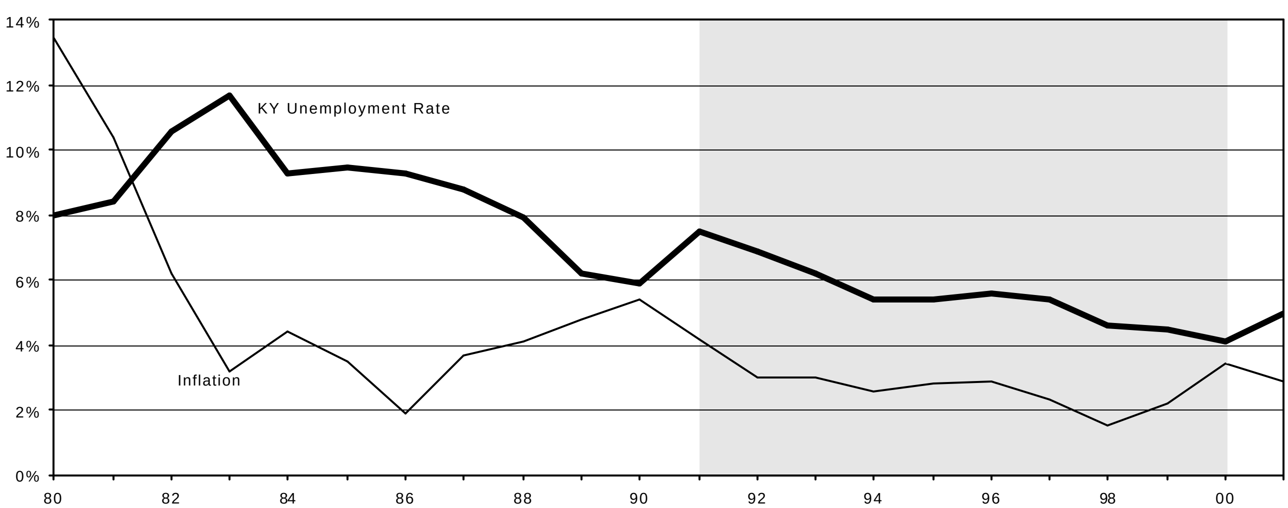
The Return of the Philips Curve

Throughout the economic upswing both the low inflation and unemployment rates baffled traditional economists who subscribed to the Philips curve theory. The theory contended that unemployment and inflation are inversely correlated. The departure from this during the rapid expansion of the 1990s was ascribed to gains in productivity from the new knowledge-based economy. The graph below shows that historically in Kentucky as inflation fell in the 1980s the unemployment rate increased, the classic Philips curve situation. Then with the beginning of the longest post-war expansion in 1991, Kentucky like the rest of the country, saw plummeting unemployment and a fall in inflation. This situation led to the coining of the term “new economy” because several precepts of classical economics where falling by the wayside. By 2000 Kentucky’s unemployment rate of 4.1 percent was the lowest in 30 years, and inflation was at 3.4 percent, having inched up slightly from a spike in energy prices. The recession validated the Philips curve. The current forecast, calls for a slight inching up of inflation from 1.9 percent in 2002 to 2.6 percent for 2003 and 2004. Unemployment in both Kentucky and the U.S. is expected to be 6.2 percent in 2002 followed by a slight easing to 5.9 percent and 5.3 percent in 2003 and 2004.

Personal Income

Kentucky’s economy had outperformed the national economy in terms of sheer longevity of the expansion. When much of the nation was hit by a recession in 1990-1991, the state economy continued to expand unabated in terms of employment and income. During the mid-1990s Kentucky’s

The Return of The Philips Curve
Unemployment Rate in Kentucky vs. Rate of Inflation



economy expanded more rapidly than the national average primarily because the national recession was prolonged by states such as California that had felt the brunt of the recession. By about 1997 the national economy started expanding faster than the state due to the payoff from technology investments nationwide, and the massive downsizing of the apparel and textile sector in Kentucky. However, by late-2000, even before the national economy slowed down, the picture changed for the state economy. The slowdown in the high tech sector that began in March 2000 did not impact us, but later in the summer the durable goods sector was affected and that had a direct impact on the state economy.

Personal income is the broadest measure of a state's economic performance. Kentucky's personal income is estimated to have been $101.8 billion in 2001 for an increase of 4.4 percent from a year ago. In comparison, U.S. personal income grew by 4.8 percent in the same period. Given our current employment mix with a preponderance of manufacturing and air transportation, it is expected that personal income will increase by just 2.1 percent in 2002, 5.2 percent in 2003, and 5.4 percent in 2004.

Employment

Employment data is commonly used to gauge the strength of the state's economy. Between 1991 and 1999 nonagricultural employment in Kentucky increased by an average of 2.5 percent annually. The corresponding figure for the U.S. was 2.2 percent. The key to this disparity, even as the national economy added high tech jobs at an unprecedented rate, was manufacturing employment. While manufacturing jobs grew by 1.7 percent annually in Kentucky during the 1990s, the national growth was just 0.1 percent. In 2000 the state economy added 29,400 new jobs compared to 42,500 jobs in 1999. With the decline in manufacturing, new jobs creation further faltered to just 11,000 in 2001. In 2002 Kentucky's nonagricultural employment is forecasted to actually decline by 0.5 percent—for the first time since 1983. Even during the last national recession employment managed to register a 0.3 percent growth.

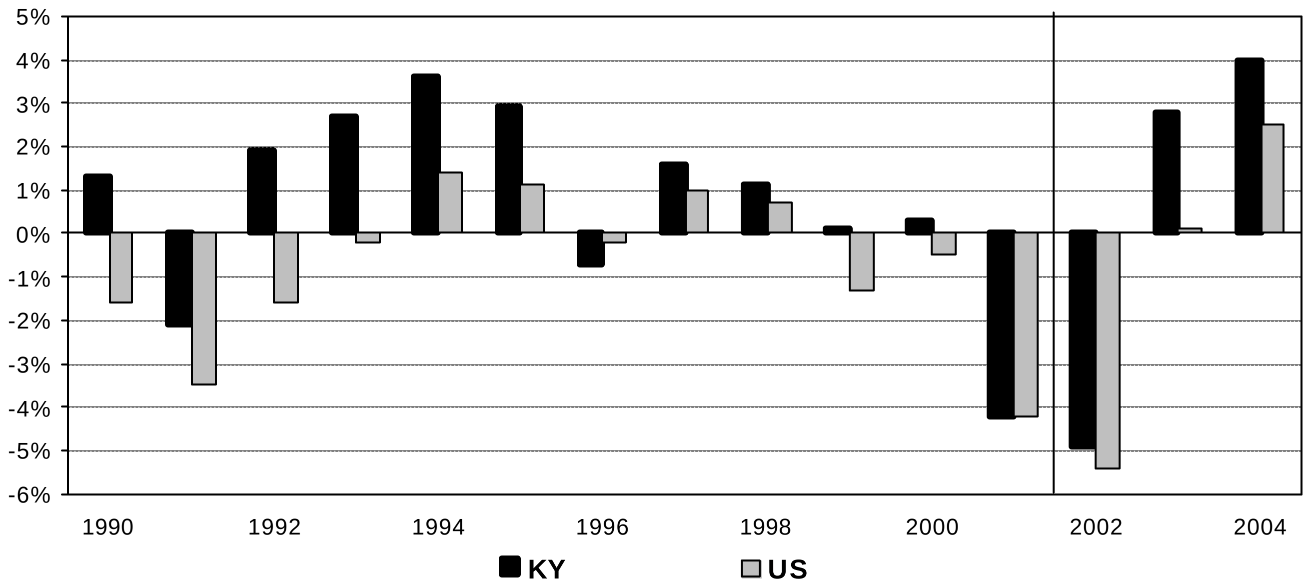
State recovery, measured in terms of the return to the peak employment level before the recession, will not take place until the October-to-December quarter of 2002. Nonagricultural employment growth is forecasted at 1.5 percent in 2003 and 2.1 percent in 2004.

Between falling investment and sluggish consumer spending, manufacturing activity continues to weaken. The protracted decline in factory output—falling in 15 of the past 17 months—is the steepest since the 1982 recession. Inventories have been shrinking since February, and the runoff should continue into this quarter. In 2002 overall manufacturing employment is expected to decline by a further 4.9 percent following a 4.2 percent drop in 2001. The durable goods sector has been the hardest hit during this recession and currently a decline of 7.1 percent is projected for this area. Even the transportation equipment sector comprised primarily of Toyota, Ford, and ancillary suppliers is expected to lose employment.

The strong economy with relatively low interest rates propelled a construction boom for much of the 1990s. The recession has caused both housing starts and business investment in construction to drop off, resulting in a slight decline in construction employment in 2001. During the next three years construction is expected to be in the doldrums.

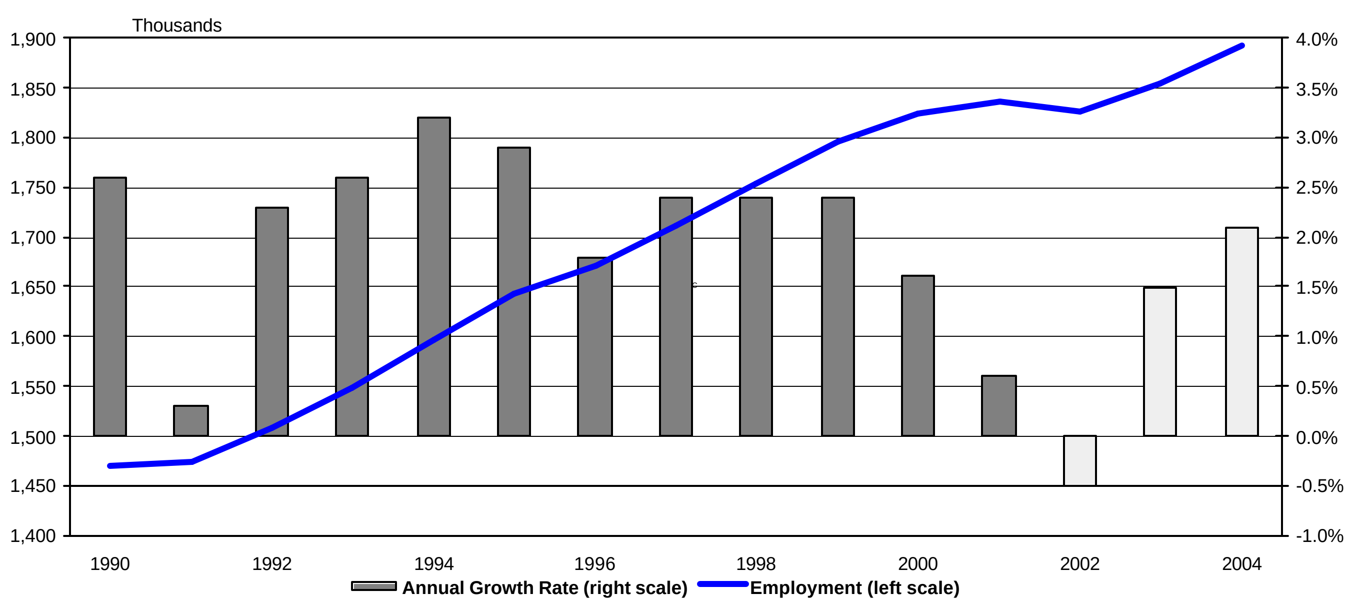
The service sector accounts for one-fourth of nonagricultural jobs in Kentucky. In 2001 over 15,000 additional service sector jobs were added for a gain of 3.3 percent. Much of the gain in Kentucky's service sector came from business services (up 6.2 percent), hotels and lodging (up 6.1 percent), and social services (up 7.1 percent).

Growth in Manufacturing Employment



Over 22 percent of the employment in the services sector in Kentucky is from business services, which include computer-related jobs, and another 32 percent are health services. The recession hasn't impacted this employment area significantly, and services are expected to actually expand strongly during 2002 by 3.9 percent, followed by growth rates of 4.1 percent and 3.2 percent in 2003 and 2004. Ironically, by not being at the forefront of the new economy, the types of services jobs that were added in Kentucky were the back-office type that are critical for day-to-day activity: check processing and call centers. These were not affected by the recession and continue to flourish.

Kentucky Nonagricultural Employment



Employment in Kentucky
Control Scenario: January 2002

	1999	2000	2001	2002	2003	2004
Thousands of Persons						
Total Nonagricultural	1,795.3	1,824.7	1,835.7	1,826.5	1,853.8	1,893.4
Contract Construction	86.5	87.4	87.1	83.3	80.5	78.5
Mining	21.5	19.6	19.5	18.0	16.5	16.1
Manufacturing	320.8	321.8	308.4	293.4	301.7	313.7
Nondurable Goods	127.6	125.9	122.0	120.3	121.7	124.3
Durable Goods	193.2	196.0	186.5	173.1	180.0	189.4
Transportation & Public Utilities	105.1	108.6	107.8	104.3	103.2	104.6
Trade	427.0	430.4	438.1	437.9	441.1	451.9
Finance/Insurance/Real Estate	70.7	76.6	75.4	71.8	71.8	71.9
Services	462.6	471.7	487.2	506.3	527.0	543.8
Total Government	301.1	308.6	312.1	311.5	312.1	312.9
Federal Government	37.0	38.7	36.8	36.9	37.1	37.3
State & Local Government	264.5	268.7	275.4	274.6	274.9	275.6
Annual Percentage Change						
Total Nonagricultural	2.4	1.6	0.6	-0.5	1.5	2.1
Contract Construction	3.5	1.0	-0.3	-4.4	-3.4	-2.5
Mining	-6.2	-8.8	-0.3	-8.0	-8.0	-2.4
Manufacturing	0.1	0.3	-4.2	-4.9	2.8	4.0
Nondurable Goods	-3.7	-1.3	-3.1	-1.4	1.2	2.1
Durable Goods	2.9	1.4	-4.8	-7.1	4.0	5.2
Transportation & Public Utilities	2.9	3.4	-0.8	-3.3	-1.1	1.4
Trade	2.4	0.8	1.8	0.0	0.7	2.5
Finance/Insurance/Real Estate	1.3	8.4	-1.5	-4.8	0.0	0.1
Services	4.5	2.0	3.3	3.9	4.1	3.2
Total Government	2.2	2.5	1.1	-0.2	0.2	0.3
Federal Government	-0.2	4.7	-5.0	0.2	0.7	0.4
State & Local Government	2.7	1.6	2.5	-0.3	0.1	0.2

MAK: Macromodel of Kentucky
Governor's Office for Economic Analysis

Selected U.S. and Kentucky Economic Indicators
Control Scenario: January 2002

	1999	2000	2001	2002	2003	2004
OUTPUT						
US Real GDP (Bil 96$)	8,856.5	9,224.0	9,319.2	9,374.4	9,721.2	10,077.3
% chg	4.1	4.1	1.0	0.6	3.7	3.7
Industrial Production Index, Mfg (%)	4.2	4.8	-4.3	-2.7	7.9	5.9
Industrial Production Index, Durables (%)	7.5	7.7	-5.4	-4.7	10.7	8.0
INCOME						
KY Personal Income (Mil$)	91,273	97,445	101,752	103,864	109,227	115,151
% chg	3.5	6.8	4.4	2.1	5.2	5.4
KY Per Capita Personal Income ($)	23,154	24,564	25,502	25,875	27,050	28,355
% of U.S. Per Capita Income	81.4	81.4	81.4	81.5	81.7	81.8
US Personal Income (Bil$)	7,777	8,319	8,720	8,911	9,374	9,900
% chg	4.7	7.0	4.8	2.2	5.2	5.6
US Per Capita Personal Income ($)	28,462	30,176	31,348	31,746	33,105	34,660
EMPLOYMENT						
KY Nonagricultural Employment (Thousands)	1,795.3	1,824.7	1,835.7	1,826.5	1,853.8	1,893.4
% chg	2.4	1.6	0.6	-0.5	1.5	2.1
US Nonagricultural Employment (Millions)	128.9	131.8	132.2	131.8	132.9	135.0
% chg	2.4	2.2	0.4	-0.4	0.9	1.6
KY Manufacturing Employment (Thousands)	320.8	321.8	308.4	293.4	301.7	313.7
chg	0.1	0.3	-4.2	-4.9	2.8	4.0
US Manufacturing Employment (Millions)	18.6	18.5	17.7	16.7	16.8	17.2
% chg	-1.3	-0.5	-4.2	-5.4	0.1	2.5
OTHER KEY MEASURES						
CPI, Rate of Inflation (%)	2.2	3.4	2.9	1.9	2.6	2.6
3-month Treasury Bill Rate (%)	4.6	5.8	3.4	2.0	3.7	4.6
Oil Price, average composite ($/barrel)	17.42	28.21	23.27	19.96	21.36	23.06

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Manufacturing Concentration

Even before the NBER's Business Cycle Dating Committee had officially recognized this economic downturn as a recession, it was commonly recognized that the manufacturing base was contracting. States with a large concentration of manufacturing activity were the first to see job losses and are expected to take longer to recover.

Concentration ratios measure a states extent of specialization in an industry compared to the national average. The concentration can be in terms of employment, or as in the map, in terms of earnings derived from manufacturing. On the map the states in white have the highest amount manufacturing concentration, while those in black have the least. Twenty years ago Kentucky was effectively at the national average with just a concentration of 101 percent. By 2000 the concentration had risen to 126 percent. Over the years both Kentucky and other states have seen declines in the proportion of their economies devoted to manufacturing. However, the decline has been sharper nationally than in Kentucky. As other states shed manufacturing jobs, the jobs either moved abroad or to states like Kentucky which offered a low-wage advantage. This strategy worked in our favor throughout the 1990s. But now, with the onset of the recession, states with a large manufacturing base have been the hardest hit. Over the next three years manufacturing concentration is forecasted to increase steadily in Kentucky reaching 130 percent by 2004.

MANUFACTURING CONCENTRATION:
EARNINGS DERIVED FROM MANUFACTURING FOR STATES VS. U.S. AVERAGE